

# PATENT SPECIFICATION

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- (21) Application No. 4395/77 (22) Filed 3 Feb. 1977  
 (31) Convention Application No. 729 807 (32) Filed 12 Oct. 1976 in  
 (33) United States of America (US)  
 (44) Complete Specification published 10 Sept. 1980  
 (51) INT. CL. G06F 15/28  
 (52) Index at acceptance G4A 22B1 22E

(19)



## (54) METHOD AND APPARATUS FOR ACCEPTING, VALIDATING AND RECORDING BETTING INFORMATION ON SLIPS FILLED OUT BY THE BETTOR.

- (71) I, STEPHEN ROBERT KRAUSE, a citizen of the United States of America, of 3607 Anton Farms Road, Baltimore, Maryland 21208, United States of America, do hereby declare the invention for which I pray that a Patent may be granted to me, and the method by which it is to be performed to be particularly described in and by the following statement:—
- 10 The invention relates to an apparatus and method for accepting, validating and recording betting information contained on mark-sense betting slips filled out by the bettor. The system is designed to accept
- 15 lottery numbers tickets, sports wagering tickets and other games that can be placed on for example a standard 12 column wide and 80 column long tab type card or slip.
- 20 Many countries throughout the world operate government sponsored number games, lotto games and sports event wagering pools. Betting slips for these games are available to the public and are filled out by marking designated parts of the betting
- 25 slip. The completed betting slip is brought to an agent or other designated location where the slip is validated on a manual basis. The customer then pays for the bets made and is given a receipt by the agent.
- 30 The agent in turn, brings all the accumulated betting slips to a central bank or other clearing house once a week or at other designated intervals and settles his cash account.
- 35 This method of handling betting slips is time consuming, error prone and costly due to the number of times the betting slip must be handled and calculated.

- 40 It is an object of the present invention to obviate or mitigate the above problems. According to the present invention there is provided apparatus for accepting, validating and recording betting information entered onto betting slips by bettors, wherein
- 45 each slip comprises information identifying

any one of a plurality of games and means for allowing a bettor to enter betting information relating to that one game, the apparatus comprising a micro-computer having program storage storing programs relating to each of the plurality of games, an optical reader for reading out game identifying and betting information from a betting slip, means controlled by the micro-computer for transferring read out information into a memory, means for checking that the read out information is valid and for rejecting slips from which invalid information has been read, means for initiating the program relating to the game identified by the read out game identifying information, a display device for displaying information related to the read out betting information, a calendar clock device for supplying time information, a tape cassette transport device for recording time information and information relating to accepted bets on tape, a printer controlled by the micro-computer for printing out tape recorded information relating to accepted bets, and a manually operable keyboard for exerting overall control of the apparatus.

The invention also provides a method for accepting, validating and recording betting information entered onto betting slips by bettors, wherein each slip comprises information identifying any one of a plurality of games and means for allowing a bettor to enter betting information relating to that one game, the method comprising storing programs relating to each of the plurality of games in a micro-computer reading out game identifying information and betting information from a betting slip with an optical reader, transferring read out information into a memory under the control of the micro-computer, checking that the read out information is valid and rejecting slips from which invalid information has been read, initiating the program relating

to the game identified by the read out game identifying information, displaying information related to the read out betting information, supplying time information from a clock device, recording time information relating to accepted bets on a cassette tape, printing out tape recorded information related to accepted bets under the control of the micro-computer, overall control of the method being effected from a manually operable keyboard.

The invention makes it possible to accept, validate and record betting information relating to a variety of betting games.

Two examples of types of games which can be dealt with are defined below. The Lottery Esportiva game is a sports pool wagering game in which the bettor must pick the results of 13 football-type games that will be held during the course of one week. The rules of the game provide that the bettor select results for all 13 games. In addition, the bettor may make double or triple bets for a given game up to a prescribed limit. In effect, the bettor has 7 possible combinations for each game, i.e. He may select:

1. team 1, 2. team 2, 3. a tie, 4. team 1 and a tie for a double, 5. team 2 and a tie, 6. team 1 and team 2, or 7. team 1, team 2 and a tie for a triple.

The rules of this game require that the bettor make a minimum of 12 single bets and one double bet for a minimum price of three cruzaros. Additional double and triple bets can be made up to a maximum of 162,00 cruzaros. The bets are calculated by exponentiating 2 to the number of doubles selected, times 3 exponentiated to the number of triples selected and multiplying that figure times 1,50 cruzaros to give the total due. This game is laid out on a 12 by 35 line matrix form.

The second example is the Bolotoca game which for a set 10,00 cruzaros bet permits the player to select 6 teams in the order 1 through 6 that he thinks will wind up as the top 6 teams, in order, during the season. The back of the slip lists 54 teams from which the bettor makes 6 selections and marks these selections by darkening the appropriate segment of the form corresponding to the selected team. This card is also laid out on a 12 by 35 line matrix form.

The optical reader may use infra-red light sources and photo-transistors to sense the presence of information on a card. The wavelength of the light emitted is preferably not in the visible spectrum. The reader senses light transmitted through the card. A heavy, dark mark made by a soft graphite pencil will attenuate the light. If no mark or hole is encountered, a data latch is not set. The back of the betting

slip contains 35 strobe marks. The latched data is not cleared until a strobe occurs. The strobe which follows the data does two things: it signals that data is stable and is ready to be read and it clears the data latches. On the back of the card on the left side is the card sense channel that consists of an unbroken black line running down the side of the card. The card sense channel detects if a card is present and controls the readers transport motor.

All text printed on the card is in red ink that cannot be picked up by the readers photodiodes. The optical reader reads one line at a time of data and transfers this data to the micro-computer and into a RAM (random access memory) memory matrix.

The micro-computer may be based on an 8080 chip and associated memory and digital logic. In operation, a bettor fills in his betting slip and presents it to the agent who in turn feeds the slip into the mark-sense reader. Data identifying the type of game and the bets are fed from the reader through the micro-computer and into a matrix memory that is controlled by the computer program. The memory matrix is dimensioned to configure with each field on the 12 by 35 line slip. A mark on any segment of the slip will cause a "1" to appear in the associated memory matrix.

Associated with each game or slip form is a ROM (read only memory) containing the program associated with that game. The slip is encoded with one black line imprinted on data line 7 of the Bolotoca game and another at line 25. The Esportiva Pool slip is encoded with a black line at data line 20.

After the betting slip is read, the data is loaded into the 12 by 35 data matrix located in the micro computer systems RAM in which 420 bits of this matrix correspond to the 420 possible data locations on each of the game slips. A mark made on the betting slip will cause a binary "1" to appear in the associated RAM matrix. No mark or a blank on the betting slip will cause a binary "0" to appear in the RAM. The RAM is then accessed by the CPU (central processing unit) under program control to determine which game slip has been read. If the bet slip does not correspond to a valid game, the program causes an error message to be the output to the Display indicating an invalid betting slip. If the slip is valid, the main program branches to the program ROM associated with the particular game. The CPU under program control checks all bets and calculates the amount of money owed by accessing data from the RAM's 12 by 35 matrix representing bets or marks made on the ticket and read by the optical reader.

If less than the required number of bets are made, more than the required number of bets are made, or if the slip has been improperly marked the program sub-routine causes the appropriate error message to be the output to the Display.

If all bets are valid, the total amount owed is the output to the display and the program stops.

- 10 Upon payment of the amount due for the wagers made, the agent presses the "accept" key on his keyboard and the bet is recorded onto a data file on the tape cassette transport. The data file will contain digital information converted from the 12 by 35 RAM matrix, representing bets made on the betting slip. The file contains 45 bytes of data listed as follows:

- File No.  
20 Receipt Serial No.  
Date and time of transaction  
13 digits of code representing the bets made (12 digits for the Bolotoca)  
25 Amount wagered  
Machine No.

- At the time the bet is accepted by the agent and his accept key is pressed, the CPU, under program control, interrogates the calendar/clock through the I/O peripheral interface and stores the data representing month, day, hour and minute. This data is then transferred to the tape file. After the bet is recorded, the program directs the CPU to print out a receipt of the transaction using the format contained in the program ROM, representing the type of transaction or betting slip used. This receipt contains information relating to the bet's placed, the amount of the bet's, the serial number of the ticket, the date and time of the transaction, and the file on which the bet was recorded. The ACU (arithmetic logic unit) of the CPU generates a sequential serial number for both the tape file and the ticket serial number by incrementing 1 to each storage register, after each transaction. The ACU also calculates the price of the bets and keeps a running total of each type of betting transaction and a cash total for each game. The agent presses his total key to obtain a visual and printed readout of each games total for either cash or number of transactions.
- 35 At the end of the betting period, the agent removes the tape cassette for pick up and processing at a central computing area. An alternate feature of the micro-computer will permit the agent to transmit the entire contents of the tape cassette to the central computer over a standard voice grade dial-up telephone line using the I/O communications interface. This is a Universal Synchronous/Asynchronous Receiver/Transmitter (USART) chip designed for data

communications in micro-computer systems. The USART is used as a peripheral device and is programmed by the CPU to operate using virtually any serial data transmission technique presently in use. The USART accepts data characters from the CPU in parallel format and then converts them into a continuous serial data stream for transmission.

As new games and betting schemes, such as numbers type lotteries and Lotto games are developed, the programming necessary for reading, recording and validating these new games and associated betting slips can be added in the form of a pre-programmed plug-in ROM to the already existing universal mark-sense betting terminal. These additional ROM's will contain all the necessary sub-programming to direct the operation of the peripheral I/O units and CPU.

The invention will be better understood from a reading of the following detailed description of an example thereof with reference to the accompanying drawings wherein:

Fig. 1 is a block diagram of the basic components of the apparatus;

Fig. 1A is a view in perspective of a housing for the apparatus;

Fig. 2 is a data flow sheet showing the components of Fig. 1 interfaced with micro-computer chips including additional memory;

Fig. 3 shows the agents keyboard with process steps for use of the keys;

Fig. 4 shows the pertinent portions of a Bolotoca betting slip with timing marks from the reverse side shown to the right;

Fig. 5 shows the initial common portion of sequence of operation for the games;

Fig. 6 shows the sequence for the Bolotoca game;

Fig. 7 shows the terminating portion of the sequence for both games;

Fig. 8 depicts the data stored for the file of betting slip of Fig. 4, as printed on a better receipt;

Fig. 9 illustrates a portion of the Esportiva ticket;

Fig. 10 shows the sequence for the Esportiva ticket;

Fig. 11 shows the data stored in the file for the Esportiva ticket of Fig. 9, as printed on a better receipt;

Fig. 12 illustrates a journal print out of transactions; and

Fig. 13 shows a print out of grand totals.

In Fig. 1 there is shown a block diagram for illustrating the principles involved in the described example of the present invention. A central processing unit (CPU) or micro-computer 11 is shown in association with several pieces of peripheral equipment. Optical mark-sense reader 13 reads

the betting slips or cards and provides the information to micro-computer 11. Calendar clock 15 supplies the exact month, day, hour and minute of each transaction.

- 5 The display 17, is provided to transmit error messages and to show the amount wagered and grand totals.

The printer unit 21, provides the receipts, journal entries and grand totals.

- 10 Tape cassette transport 19, receives the betting slip information and records it sequentially in the files, with one file per slip up to 5,000 files. It is designed to read back to the micro-computer 11, for journal

- 15 entries.
- The acoustical coupler and modem 23, interconnects the micro-computer 11, over telephone line 25, to the remote central computer (not shown) for supplying all

- 20 information thereto.
- The agent's keyboard 27, is provided to permit him to exert certain controls over the process. It comprises six keys with six separate functions discussed in connection

- 25 with Fig. 3.
- In Fig. 1A, there is shown a view in perspective of an apparatus in accordance with this invention. A housing 31, includes the electronics with the exception of the

- 30 optical mark-sense reader 13, which is inter-connected with housing 31, via cable 33. A ticket or betting slip 35, is shown being placed into the reader for scanning.

- Housing 31, includes the six agents keys
- 35 or keyboard 27, the printer 21, the calendar clock 15, and the display 17, visible from the exterior. Also a cassette 19, is shown in place for receiving or transmitting information.

- 40 In Fig. 2, the details of the micro-computer 11, are shown. It comprises all of the drawing with the exception of the peripheral units already discussed in connection with Fig. 1.

- 45 The central processing unit is shown at 40 as being a micro-processor chip of the 8080 type. The remaining components are separate chips and are connected to the CPU 40 by way of data bus 41 (8 wires ie 8

- 50 bits), control bus 43 (6 bits data), and address bus 45 (16 bit data).

- A clock generator and driver 47, provides the clock signals to CPU 40 at inputs

- 55 location 0 in memory), phase 1, phase 2 (two externally supplied clock phases), RDY (valid data available on 8080 bus), and the CPU unit 40 addresses the clock

- 60 47 over a SYNC lead.

- The in-out control for CPU 40 is a system controller chip 51, of the 8228 type.

- 65 The WR lead for write is used for the memory write or input-output control. The DO-D7 (8 bit) bus is for bi-directional data transfer. The DBIN is the data bus control

and the HLDA is the hold acknowledge. STSTB defines status between clock 47 and controller 51.

The CPU unit receives and transfers information to the remaining chips in Fig. 2, 70 over the AO-A15 address bus. This provides the address to memory up to 64,000 eight bit words or denotes the input-output device number for up to 256 input and 256 output devices. AO is the least significant 75 address bit.

The micro-computer 11 is provided with three ROM memories all 8316 chips. The first ROM memory 60, stores the main program. The second ROM memory 61, 80 stores the program for the Bolotoca game and the third ROM memory 62, stores the program for the Esportiva game. Further ROMs may be incorporated to add additional games to the present system.

Two RAM or random access memories are shown, each of 8101 type chips. One of these RAMs, for example 64, may include the matrix which is twelve by 35, and the other RAM 65, is provided for secondary 85 data storage.

Each of the peripherals is interfaced with the micro-computer 11, over peripheral interface chips 70-76, with the later 6 chips 95 being of type 8255 and communication interface chip 70 being type 8251.

#### BOLOTECA GAME

In Fig. 4, the pertinent portions of the bettor slip or card are shown to describe the principles employed. On the reverse side of the ticket, indicated by the strip 80, there are shown 35 timing marks called strobe marks 81. It is the information between these marks which is read. The data field 83, is found between identification bars 85 and 87. Bars 85 and 87 correspond to field lines 7 and 25 which identify the Bolotoca game with data information there-between.

This ticket is marked by the bettor, such that team 10 should come up first (1), team 12 second (2), team 33 third (3), and so forth in the sequence of six teams essential to pick.

This data information is read into RAM 64 (Fig. 2) under program control by micro-computer 11, using CPU 40. The capacity of this RAM exceeds 35 lines by 12 fields which covers the largest data matrix of 12 by 35. While the information in field 83, of the Bolotoca slip is only 14 lines by 12 fields, other games require more data.

Referring now, to Fig. 5, the sequence of operation for playing either of the games 125 is shown as starting at START 101. Betting slip 35 (of either Bolotoca or Esportiva type) is inserted into reader 13 which is shown as block step 102. Micro-computer

11, under program control, reads this slip 130

as step 103, by virtue of control over  
 13, from micro-computer 11. Data  
 flows from optical mark-sense reader 13  
 through line 104 (Fig. 2) into peripheral  
 5 interphase 76. The data then flows through  
 bus 105, into bus 41, and then on through  
 bus 106 into systems controller 51. The  
 data then flows through bus 107 into CPU  
 40. CPU 40 then addresses RAM 64 by  
 10 sending a signal over address bus 108, into  
 address bus 45, and then through address  
 bus 109 to RAM 64. Under program control,  
 CPU 40 directs the data originating  
 from optical mark-sense reader 13, through  
 15 data bus 107 to systems controller 51, and  
 then through data bus 106 into data bus  
 41 and then to data bus 110, going to  
 RAM 64. The data is then distributed to  
 the 12 by 35 matrix residing within RAM  
 20 64. The identity check or step shown at  
 121 (Fig. 5) determines whether or not bars  
 85 and 87 on the Boloteca ticket (Fig. 4)  
 appear at line 7 and line 25 and each take  
 up 12 fields. Under program control, CPU  
 25 40 then checks at step or block 123 (Fig. 5)  
 to determine if calendar clock chip 15 (Fig.  
 2) is working.

If not the program branches to the display  
 error stop and reset routing, illustrated  
 30 by blocks 125 and 127. If the answer is  
 yes, the program proceeds to step 129  
 which is a decision as to whether the tape  
 cassettes in. Here again if the answer is no,  
 the display and reset subroutine is brought  
 35 in. If yes, the next question is, is the  
 cassette filled, step 130. If no, step 131  
 continues with the mainline program. At step  
 131 it is determined that there is bar data  
 in line 7 and line 25 so that the game of  
 40 Boloteca is recognized and the program  
 branches to the Boloteca program 132  
 contained in ROM 61.

Beginning with Fig. 6, now Boloteca step  
 133 determines if six bets have been made,  
 45 by checking for data in rows one through  
 six of field 83 (Fig. 4). If no, the error  
 message is displayed at box 134 and the  
 error and stop and reset subroutine brought  
 into play, including step or box 135.

The error messages are, as follows:

1. improper bets
2. less than the required number of bets  
 made
3. bets made over set cash limit
4. invalid slip form
- 55 5. bets made under set cash limit
6. calendar/clock not working
7. tape cassette not in transport
8. tape full, change cassette
- 60 9. wrong tape format

In the present situation, as a result of  
 error message number 2 a display is made  
 at 134. If all six bets have been made the  
 program proceeds to display price at step  
 65 or block 135. For the Boloteca game, only

ten crueros is displayed.

Step 136 is for the agent to press his  
 push button number 5 of Fig. 3, which  
 accepts the bet. Alternatively, he may press  
 his reject key 6, shown by block 137,  
 70 which would then reset the machine.

If the bet is acceptable, the Boloteca  
 format is loaded in the RAM 65 from  
 ROM 61 under control of CPU 40. At step  
 138 this branches the program back to the  
 main sequence of Fig. 7, shown at C by  
 step 139. Calendar clock 15, is addressed  
 and its data stored at step 140. Step 141  
 records the betting data, clock data, serial  
 no., machine no., and total amount of bet  
 on tape cassette 19. At step 142, printer  
 21 prints the ticket receipt. This information  
 is shown in Fig. 8. The identification  
 of the game is printed at 143. The playing  
 period information appears at 144. The bet  
 75 data appears under classification as place 1  
 team 10, place 2 team 12, etc. The amount  
 of the bet appears at 145, serial no. at 146,  
 date and time at 147 and tape cassette file  
 were the data is recorded at 149.

Returning to Fig. 7, the step 151 increments  
 internal registers of CPU 40 by 1.  
 Step 151 increments at register C, the serial  
 no., and step 152 increments register D for  
 the file no., and step no. 153 increments  
 95 the total amount of the bet at register F.  
 Step 154 is the automatic stopping and  
 resetting of micro-computer 11.

#### ESPORTIVA GAME

The pertinent portions of the Esportiva  
 ticket are shown in Fig. 9 with identifica-  
 tion bar 150 being placed at line 20.  
 The bettor must select the outcome of 13 games  
 which are being held during a one week  
 period. The bettor may select either team  
 105 one to win, team two to win or a tie be-  
 tween the two teams as a standard bet.  
 In addition, he may select double or triples  
 for any particular game up to a certain  
 crusero total. The rules of this game require  
 that the bettor make a minimum of 12 single  
 bets and one double bet for a minimum  
 price of three crueros. Additional double  
 and triple bets can be made up to a maxi-  
 mum of 162 crueros. This game is laid  
 115 out on a 12 by 35 matrix form.

Returning now to Fig. 5, the sequence  
 of operation is shown beginning with start  
 101 and traversing the same steps already  
 explained until identifying bar 150 (Fig. 9)  
 is sensed in the proper position to identify  
 the Esportiva game at step 200 (Fig. 5).  
 The program then branches to Esportiva  
 program 201, in ROM 62 (Fig. 2).

This is illustrated in Fig. 10 wherein the  
 first decision shown at step 203 is have 13  
 bets been made. In this game if the bets  
 are proper, then step 204 calculates the bet  
 price for all bets for that particular ticket.  
 At step 205 if it is under the limit, it dis-  
 130

plays a message via 206 and stops and  
resets at 207. If over the limit, the same is  
true via step 209, under control of decision  
210. If everything is proper, the total price  
is displayed at 211. Next, the agent then  
receives the cash at step 212 and he presses  
his accept key (Fig. 3) at step 213. Step  
214 loads the Esportiva format from ROM  
62 to RAM 65. The program is then  
branched back at step 215 from Fig. 10  
to Fig. 7, to the main program shown as  
starting at 139. The main program is fol-  
lowed, as before, through step 154 stop and  
reset.

15 The main program of Fig. 7 includes  
step 142 which is printing the ticket receipt.  
The receipt for the Esportiva game is illus-  
trated in Fig. 11. At 270 there is shown the  
identification and ending week for the game.  
20 Number 271 indicates the selections at  
marked on the original ticket. Number 272  
shows the amount calculated for the wager  
on this particular ticket. The serial no. is  
shown at 273, the game week sequential  
25 identification no. is shown at 274, time and  
date information at 275, and file no. at 276.

Returning now to Fig. 3, the remaining  
functions of the agents keyboard 27 will  
be described. The transmit key 1, causes  
all tape cassette data to be transmitted from  
30 cassette 19, under program control of CPU  
40, to communication interface 70 (Fig. 2),  
and via acoustical coupler and modem 23,  
to remote telephone line 25, extending to  
35 the remote computer. Step 301 reword  
the tape, step 302 controls the addressing  
of the communication interface, step 303  
establishes handshake with the remote com-  
puter, step 304 reads the data of files from  
40 the cassette, and step 305 stops and resets  
the micro-computer.

The grand total of bets (agents key no.  
2), at step 310, addresses register F of CPU  
40 to print the grand total of bets at step  
45 311, and displays this total at step 312.

Key no. 3 merely controls the grand  
total of the no. of bets or betting slips to  
that time. When it is depressed, at step  
313, register D of CPU 40 is addressed to  
50 print this no. at step 314 and display the  
data at step 315.

As a result of operation of agents keys  
2 and 3, the information available is shown  
printed out at Fig. 13. Tape cassette no.  
55 is shown at 400, clock information at 401,  
machine no. at 402, serial no. of the last  
ticket at 403, and the final number of tickets  
sold to the time of depressing the key at  
404.

60 At 405, the total amount of the bets at  
the time of depressing the key is shown.  
The total Esportiva betting slips is shown  
at 406, the total amount bet on the  
Esportiva games at 407, the total number  
65 of Bolotéca bets at 408, and the total Bolo-

teca money wagered at 409.

Reference is now made to Fig. 3, agents  
keyboard button no. 4, Journal Printout of  
Transactions. The agent may select at any  
time, to have the entire printout of all files  
70 within the tape cassette. Depressing key 4,  
selects a subprogram in program ROM 60  
and causes the tape cassette to rewind to  
the beginning of tape status, as shown in  
block 420. CPU 40, under program control,  
75 stores the number 1 in register B, as shown  
in block 421. File B within tape cassette  
transport 19, is then loaded into RAM 65,  
as shown in block 422. All data in file E  
is printed on a journal tape, through printer  
80 21. As shown in Fig. 12, block 424 (Fig.  
3) causes file E to be incremented by 1,  
thereby advancing register E to the next  
number. Decision 425 checks for end of  
tape status. If the tape is not at its end, 85  
the program branches back to block 422,  
to load the next file and the same sequence  
is repeated again until the end of the tape  
has been reached, whereupon the stop and  
reset function, as noted in block 426, takes  
90 place.

Fig. 12 shows a journal printout for five  
separate transactions. Header 500 explains  
the code for bets in the Esportiva game.  
The number 1 denotes that team one was  
95 bet, 2 shows that the x or tie was bet, 3  
notes that team two was bet, 4 notes that  
teams one and two were played for double,  
5 denotes that teams one and a tie were  
bet for a double, 6 denotes that teams two  
100 and a tie were bet for a double, 7 denotes  
that all three positions, team one, a tie  
and team two were selected for a triple.

Number 501 shows one transaction print-  
out. Number 502 shows the file number on  
the tape cassette, 503 shows the serial no.  
of the ticket, 504 shows the date and time  
of the transaction, 505 notes the type of  
bet which was made in each one of the 13  
games, as noted above. 506 lists the total  
110 amount of the bets, 507 lists the total  
amount accumulated in the grand total  
register F, and 508 lists the machine identi-  
fication no.

Number 509 shows the transaction for  
a Bolotéca bet. All information is the same  
as contained in the Esportiva file with the  
exception that the word Bolotéca appears  
in the file and that six sets of two numbers  
each are shown at 150 identifying the bets  
120 made from the six games of the original  
ticket.

Numbers 511, 512 and 513 show suc-  
cessive printouts of transactions of the tape  
cassette.

For these games, in CPU 40, the follow-  
ing memory allocation is made. Register  
C-serial no. of transaction, Register D-no.  
of transactions and tape file no., Register  
E-journal printout counter, Register F-total  
130

of bets made, Register H-total no. of Esportiva bets, Register L-total no. of Bolotoca bets and Register W-total amount of Esportiva.

- 5 By using the principles herein taught, other games may be programmed into CPU 40 and similarly tabulated.  
The system is low power and an auxiliary re-chargable storage battery 10 power supply backs it up.

#### WHAT I CLAIM IS:

1. Apparatus for accepting, validating and recording betting information entered onto betting slips by bettors, wherein each 15 slip comprises information identifying any one of a plurality of games and means for allowing a bettor to enter betting information relating to that one game, the apparatus comprising a micro-computer having program storage storing programs relating to 20 each of the plurality of games, an optical reader for reading out game identifying and betting information from a betting slip, means controlled by the micro-computer for transferring read out information into a 25 memory, means for checking that the read out information is valid and for rejecting slips from which invalid information has been read, means for initiating the program 30 relating to the game identified by the read out game identifying information, a display device for displaying information related to the read out betting information, a calendar clock device for supplying time information, a tape cassette transport device for 35 recording time information and information relating to accepted bets on tape, a printer controlled by the micro-computer for printing out tape recorded information relating to 40 accepted bets, and a manually operable keyboard for exerting overall control of the apparatus.

2. An apparatus according to claim 1, comprising a terminal for a remote 45 computer and further including an acoustical coupler and modem means under the control of the micro-computer for transferring tape recorded information to the remote computer.

3. An apparatus according to claim 2, wherein the display device is under the control of the micro-computer and displays read out information necessary to validation, and wherein the keyboard comprises 55 manually operable accept and reject means for accepting or rejecting each bet.

4. An apparatus according to claim 3, wherein the micro-computer comprises a central processing unit, an in-out system control means, a plurality of ROM and RAM memories, interfaces for all means 60 associated with the micro-computer, and transfer buses interconnecting all means and memories via said central processing unit. 65

5. An apparatus according to claim 4 wherein the matrix storage capacity of at least one of said RAM's exceeds the matrix data capacity of each betting slip, said one RAM receiving and storing betting data 70 from each slip.

6. An apparatus according to claim 5 wherein the ROM memories store game formats, and means are provided for 75 comparing game identifying indicia read from the betting slips by the optical reader with predetermined stored game format data, the central processing unit being adapted to select from the appropriate ROM the game format for the game identified by 80 comparison of the read out indicia with the stored game format data.

7. An apparatus according to claim 6 wherein said keyboard comprises a plurality of further manually operable means for 85 controlling the transmission of tape recorded information from the tape device to the remote computer, the printing of totals of bets and slips, and the printout of all the tape recorded information. 90

8. An apparatus according to claim 7 wherein at least one of said ROM's stores game format unique to Bolotoca (as hereinafter defined) at least another of said ROM's stores game format unique to 95 Esportiva (as hereinbefore defined) and at least a further of said ROM's stores game format common to said Bolotoca and said Esportiva.

9. An apparatus according to claim 8 100 wherein said further of said ROM's stores indicia unique to each of said Bolotoca and Esportiva games, and said central processing unit diverts from the common game format by shifting from said further ROM 105 to said one or said another ROM for the selected game format.

10. A method for accepting, validating and recording betting information entered 110 onto betting slips by bettors, wherein each slip comprises information identifying any one of a plurality of games and means for allowing a bettor to enter betting information relating to that one game, the method comprising storing programs relating to 115 each of the plurality of games in a micro-computer, reading out game identifying information and betting information from a betting slip with an optical reader, transferring read out information into a memory 120 under the control of the micro-computer, checking that the read out information is valid and rejecting slips from which invalid information has been read, initiating the program relating to the game identified by 125 the read out game identifying information, displaying information related to the read out betting information, supplying time information from a clock device, recording time information relating to accepted bets 130

on a cassette tape, printing out tape recorded information related to accepted bets under the control of the micro-computer, overall control of the method being effected from a manually operable keyboard.

- 5 11. A method according to claim 10 wherein a terminal for a remote computer is acoustically coupled under control of the micro-computer to the remote computer, and the tape recorded information is transferred to the remote computer.

- 10 12. A method according to claim 11, wherein information read out from said slips is displayed, and acceptance or rejection of each bet is determined from said displayed information.

- 15 13. A method according to claim 12, wherein a matrix storage capacity of at least one of said RAM's exceeds the matrix data capacity of each betting slip, and data read out from each slip is stored in said one RAM.

- 20 14. A method according to claim 13, wherein betting game formats are stored in 25 ROM memories, the read out game identifying information is compared with predetermined stored game format data, and the central processing unit selects from the appropriate ROM the game format for the 30 game identified by the comparison of the read out indicia and the stored game format data.

15. A method according to claim 14,

wherein selected data is transmitted from the tape to the remote computer, and the totals of bets, slips and a journal of transactions are printed out.

- 35 16. A method according to claim 15, wherein at least one of said ROM's loads is loaded with a game format unique to Boloteca (as hereinbefore defined) at least another of said ROM's is loaded with a game format unique to Esportiva (as hereinbefore defined) and, at least a further of said ROM's is loaded with game format common to said Boloteca and said Esportiva.

- 40 17. A method according to claim 16, wherein the indicia unique to each of said Boloteca and Esportiva games is established in said further ROM, and the common game format is diverted by shifting from said further ROM to said one of said another ROM for the selected game format.

- 45 18. An apparatus for accepting, validating and recording betting information, substantially as herein described with reference to the accompanying drawings.

- 50 19. A method for accepting, validating 55 and recording betting information, substantially as herein described, with reference to and as illustrated in the accompanying drawings.

WHEATLEY & MACKENZIE,  
Agents for the Applicant.



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## COMPLETE SPECIFICATION

8 SHEETS

This drawing is a reproduction of  
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Sheet 1

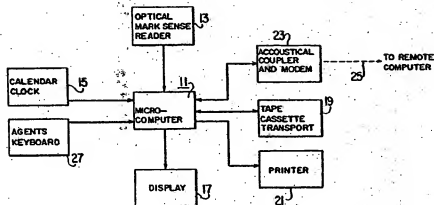


FIG. 1

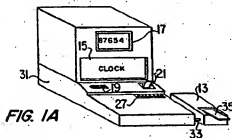


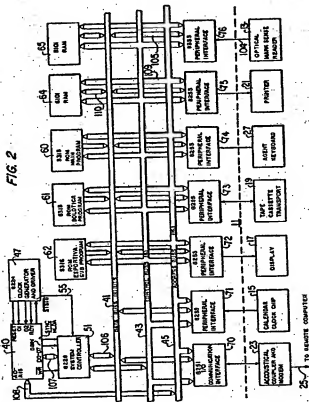
FIG. 1A

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## COMPLETE SPECIFICATION

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Sheet 2

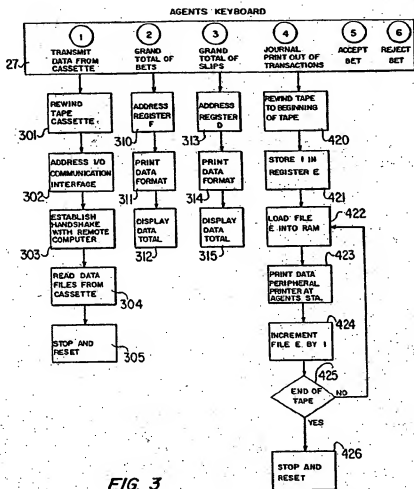


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## COMPLETE SPECIFICATION

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Sheet 3



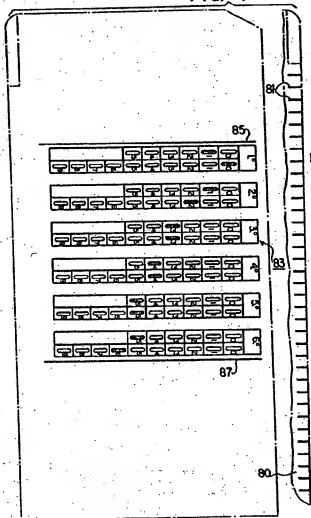
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## COMPLETE SPECIFICATION

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Sheet 4

FIG. 4



143 LOTERIA  
ESPORTIVA  
BOLETIM  
144 Agosto / Outubro  
1976  
Concurso 1  
Classificação

10

2

12

3

33

4

44

5

53

6

66

CAIXA ECONOMICA  
FEDERAL145  
C/S 10.00  
No 10030022

147 9282127

149 2

FIG. 8

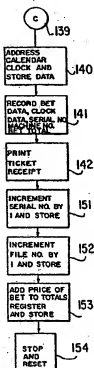


FIG. 7

BOLOTECA  
SLIP GO TO  
A

132

ESPORTIVA  
SLIP GO TO  
B

201

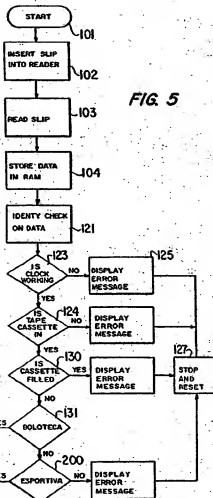


FIG. 5

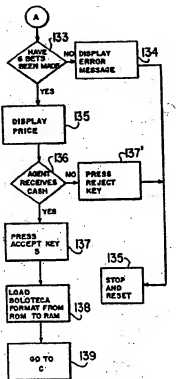
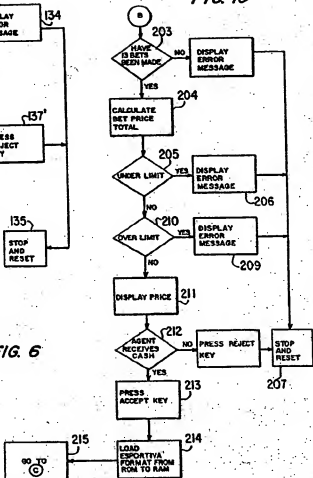


FIG. 6

FIG. 10



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## COMPLETE SPECIFICATION

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FIG. 11

270 LOTERIA  
ESPORTIVA  
06/06/76

OR --- X --- 2

1	X	X
2	X	X
3	X	X
4	X	X
5	X	X
6	X	X
7	X	X
8	X	X
9	X	X
10	X	X
11	X	X
12	X	X
13	X	X

## LOTERIA ESPORTIVA

1	X	2	D	T
1 <input type="checkbox"/> Atlético (PR)	<input type="checkbox"/>	<input type="checkbox"/> Pinheiros (PR)	<input type="checkbox"/>	<input type="checkbox"/>
2 <input type="checkbox"/> Mogi (PR)	<input type="checkbox"/>	<input type="checkbox"/> Colorado (PR)	<input type="checkbox"/>	<input type="checkbox"/>
3 <input type="checkbox"/> Coritiba (PR)	<input type="checkbox"/>	<input type="checkbox"/> União (PR)	<input type="checkbox"/>	<input type="checkbox"/>
4 <input type="checkbox"/> Interporto (SC)	<input type="checkbox"/>	<input type="checkbox"/> Audax (SC)	<input type="checkbox"/>	<input type="checkbox"/>
5 <input type="checkbox"/> Rio Branco (RS)	<input type="checkbox"/>	<input type="checkbox"/> Grêmio (RS)	<input type="checkbox"/>	<input type="checkbox"/>
6 <input type="checkbox"/> Goiás (GO)	<input type="checkbox"/>	<input type="checkbox"/> Goiás (GO)	<input type="checkbox"/>	<input type="checkbox"/>
7 <input type="checkbox"/> CEUB (DF)	<input type="checkbox"/>	<input type="checkbox"/> Brasília (DF)	<input type="checkbox"/>	<input type="checkbox"/>
8 <input type="checkbox"/> Vitória (BA)	<input type="checkbox"/>	<input type="checkbox"/> Gócio (BA)	<input type="checkbox"/>	<input type="checkbox"/>
9 <input type="checkbox"/> Fluminense (RJ)	<input type="checkbox"/>	<input type="checkbox"/> Botafogo (RJ)	<input type="checkbox"/>	<input type="checkbox"/>
10 <input type="checkbox"/> Tiradentes (CE)	<input type="checkbox"/>	<input type="checkbox"/> Ceará (CE)	<input type="checkbox"/>	<input type="checkbox"/>
11 <input type="checkbox"/> Fluminense (AM)	<input type="checkbox"/>	<input type="checkbox"/> Nacional (AM)	<input type="checkbox"/>	<input type="checkbox"/>
12 <input type="checkbox"/> América (PE)	<input type="checkbox"/>	<input type="checkbox"/> São Cruz (PE)	<input type="checkbox"/>	<input type="checkbox"/>
13 <input type="checkbox"/> Sport Recife (PE)	<input type="checkbox"/>	<input type="checkbox"/> Náutica (PE)	<input type="checkbox"/>	<input type="checkbox"/>

272 C. \$ 3.00

273 No 10000021

Teste 209

274 CAIXA ECONOMICA  
FEDERAL

275 9282127

00001 276

FIG. 9

1574447

## COMPLETE SPECIFICATION

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ESPORTIVA	
500 {	1 = 1; X = 2; 2 = 3 1 + 2 = 4; 1 + X = 5 X + 2 = 6; 1 + X + 2 = 7
501 {	Arquivo 1 ~ 502 503 No 10030021 Data 9282127 ~ 504 6222222 222222 ~ 505 Cr \$ 3.00 ~ 506 TCr \$ 3.00 ~ 507 Maquina No 00001 ~ 508
509 {	Arquivo 2 No 10030022 Data 9282127 BOLOTICA 101233 445556 Cr \$ 10.00 TCr \$ 13.00 Maquina No 00001
511 {	Arquivo 3 No 10030023 Data 9282128 5656522 222222 Cr \$ 24.00 TCr \$ 37.00 Maquina No 00001
512 {	Arquivo 4 No 10030024 Data 9282128 111111 111174 Cr \$ 9.00 TCr \$ 46.00 Maquina No 00001
513 {	Arquivo 5 No 10030025 Data 9282129 4464471 111111 Cr \$ 144.00 TCr \$ 199.00 Maquina No 00001

FIG. 12

400 ~	File No	1003
401 ~	Data	9282133
402 ~	Maquina No	00001
403 ~	Recibo Final	10030030
404 ~	Arquivo Final	No 10
405 ~	Cr \$ Total	372.00
406 ~	Total Esportivo	0
407 ~	Total \$ Esportivo	352.50
408 ~	Total Boloteca	
409 ~	Total \$ Boloteca	20.00

FIG. 13